REMARKS

In the Office Action mailed March 10, 2006, Claims 1, 6, and 24-27 are rejected under 35 USC §103(a) as being unpatentable over Johnson (U.S. Patent 4,947,366) in view of Lin et al. (U.S. Patent Application 6,026,230, hereinafter "Lin"). Claims 2, 12-16, 21, 22, and 29-32 are rejected under 35 USC §103(a) as being unpatentable over Johnson and Lin as applied to Claims 1, 6 and 24-27 and further in view of Loyer et al. (U.S. Patent 6,298,396, hereinafter "Loyer").

Response to Rejection of Independent Claims 1, 6 and 24-27

In response to the rejection of Claims 1, 6, and 24-27 as being unpatentable over Johnson in view of Lin et al., Applicants have amended independent Claim 1 to overcome the rejection. In particular, Applicants have amended independent Claim 1 to indicate that the direct memory access (DMA) controller is "adapted to operate in a descriptor mode." Applicants have further amended Claim 1 to indicate that "the DMA controller sends an acknowledge signal to the I/O device in response to receiving the early termination request signal." Finally, Applicants have amended the system of Claim 1 to include:

> "a descriptor table storing commands to carry out a transfer, the descriptor table being updated with a reduced transfer count in response to receiving the early termination request signal from the I/O device when the DMA controller is operating in the descriptor mode."

Applicants respectfully submit that neither Johnson nor Lin discloses or suggests a DMA controller sending an acknowledge signal to the I/O device in response to receiving the early termination request signal. While it is suggested in the Office Action that Johnson teaches the termination of a DMA transfer before a terminal count is reached in Col. 29, lines 1-65, this disclosure of Johnson relates to I/O transfers, and not DMA transfers. Further, the reporting of an error does not comprise a request for termination made by the I/O device, which may be independent of an error. For example, certain errors signal may be tolerable and not lead to any termination, or a certain number of a given error signal may be tolerable when redundant data is transmitted. In contrast, the I/O device of the system of Applicants' Claim 1 expressly

sends an early termination request, and the DMA controller sends an acknowledge signal. Applicants further submit that neither reference discloses or suggests a descriptor table being updated with a reduced transfer count in response to receiving the early termination request signal from the I/O device when the DMA controller is operating in the descriptor mode. Because an early termination request signal may be received in cases where the exact amount of incoming data is not known in advance, the I/O device may transmit an early termination request when all of the required data has been received. Such a circumstance would not result from an error. Further, the system of Applicants Claim 1 updates the descriptor table with a reduced transfer count. Applicants further submit that neither reference discloses or suggests updating a transfer count after receiving an early termination request signal. Applicants respectfully submit that independent Claim 1 as amended and dependent Claims 6 and 24-27 are allowable over the combination of references, and respectfully request reconsideration of the rejection.

Response to Rejection of Claims 2, 12-16, 21, 22 and 29-32

In response to the rejection of Claims 2, 12-16, 21, 22, and 29-32 as being unpatentable over Johnson and Lin further in view of Loyer, Applicants have amended the claims to overcome the rejection. In response to the rejection of Claim 2, Applicants respectfully submit that Claim 2 is allowable over the combination of references for the same reason that independent Claim 1 as amended is allowable over the combination of Johnson and Lin. The additional reference Loyer is cited for disclosing the transmission of a packet from the beginning to prevent the loss of packet data. However, Loyer also fails to disclose or suggest a DMA controller sending an acknowledge signal to the I/O device in response to receiving the early termination request signal, or a descriptor table being updated with a reduced transfer count after receiving the early termination request signal. Applicants respectfully request reconsideration of the rejection of Claim 2 in view of the amendment to Claim 1.

In response to the rejection of Claims 12 and 29-32, Applicants have amended independent Claim 12 to overcome the rejection. In particular, Applicants have

amended independent Claim 12 to indicate that the direct memory access (DMA) controller is "adapted to operate in a descriptor mode." Applicants have further amended the claim to include a descriptor table storing commands to carry out a transfer of data with the DMA controller. Applicants have also amended claim 12 to indicate that the DMA controller re-executes a DMA transfer "of the data associated with a current descriptor entry stored in the descriptor table" from the beginning with the I/O device upon receiving a retransmit request signal from the I/O device, wherein the DMA controller "sends an acknowledge signal to the I/O device in response to receiving the retransmit request signal." Finally, Applicants have amended claim 12 to indicate that, in addition to sending an acknowledge, "the transmission of the data associated with the current descriptor entry stored in the descriptor table is restarted." Applicants submit that none of the references relied upon discloses or suggests an I/O device which sends a retransmit request, and a DMA controller which sends an acknowledge signal to the I/O device in response to receiving the retransmit request signal. Applicants respectfully submit that independent Claim 12 as amended and dependent Claims 29-32 are allowable over the combination of references, and respectfully request reconsideration of the rejection.

In response to the rejection of Claims 13 and14, Applicant has amended independent Claim 13 to overcome the rejection. In particular, Applicants have amended the method of independent Claim 13 to include a step of "storing commands in a descriptor table to carry out a transfer of data between the first device and the second device." Applicants have further Claim 13 to indicate that the step of transmitting an acknowledge signal from the DMA controller to the first device is "in response to receiving the request by the first device to re-transmit the data." Finally, Applicants have amended the step of re-transmitting to indicate that the retransmitted data is "associated with a current descriptor entry stored in the descriptor table." Applicants further submit that none of the references relied upon discloses or suggests transmitting an acknowledge signal from the DMA controller to the first device in response to receiving the request by the first device to re-transmit data. While it is suggested that Johnson discloses the use of acknowledge signals in DMA transfers in Col. 9, lines 37-50 and Col. 10, lines 12-17, the text in the cited sections fail to disclose

or suggest transmitting an acknowledge signal from the DMA controller to the first device in response to receiving the request by the first device to re-transmit data. Applicants respectfully submit that independent Claim 13 as amended and dependent Claim 14 are allowable over the combination of references, and respectfully request reconsideration of the rejection.

Finally, in response to the rejection of Claims 15, 16 and 21, Applicants have amended independent Claim 15 to overcome the rejection. In particular, Applicants have amended independent Claim 15 to include a step of "storing commands in a descriptor table to carry out a transfer of data between the first device and a second device." Applicants have further amended the step of transmitting an acknowledge signal to indicate that the acknowledge signal is sent "in response to receiving the request by the first device to terminate the transfer of data." Finally, Applicants have added a step of "updating the descriptor table with a reduced transfer count in response to receiving the request by the first device to terminate the transfer of data when the direct memory access controller is operating in the descriptor mode." Applicants further submit that none of the references relied upon discloses or suggests transmitting an acknowledge signal in response to receiving the request by the first device to terminate the transfer of data, or updating the descriptor table with a reduced transfer count after receiving the request by the first device to terminate the transfer of data. Applicants respectfully submit that independent Claim 15 as amended and dependent Claims 16 and 21 are allowable over the combination of references, and respectfully request reconsideration of the rejection.

CONCLUSION

It is believed that Claims 1-2, 6, 12-16, and 21-22, 24-27, and 29-32 are in condition for allowance and, therefore, a Notice of Allowance of Claims 1-2, 6, 12-16, and 21-22, 24-27, and 29-32 is respectfully requested. If the Examiner's next action is other than allowance as requested, the Examiner is requested to call the undersigned at (408) 879-6149.

Respectfully submitted,

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I hereby certify that this correspondence is being deposited with the United States Postal Service as first-class mail in an envelope addressed to: Commissioner for Patents, P.O. BOX 1450, Alexandria, VA 22313-1450, on May 4, 2006.

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